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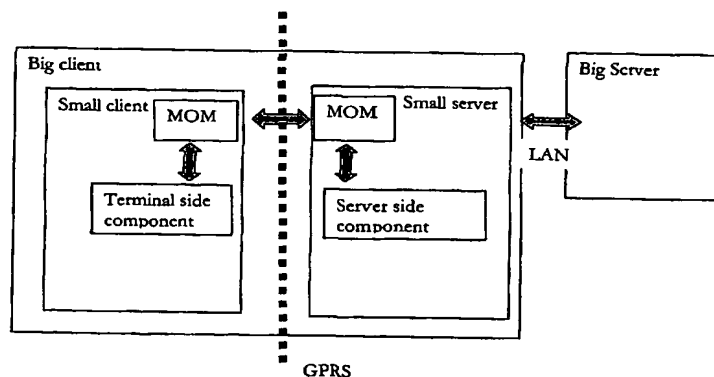
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[Continued on next page]

(54) Title: A DATA ACCESS, REPLICATION OR COMMUNICATION SYSTEM COMPRISING A DISTRIBUTED SOFT-  
WARE APPLICATION



(57) Abstract: The present invention envisages a data access, replication or communications system comprising a software ap-  
plication that is distributed across a terminal-side component running on a terminal and a server-side component; in which the  
terminal-side component and the server-side component (i) together constitute a client to a server and (ii) collaborate by sending  
messages using a message queuing system over a network. Hence, we split (i.e. distribute) the functionality of an application that  
serves as the client in a client-server configuration into component parts that run on two or more physical devices that communicate  
with each other over a network connection using a message queuing system, such as message oriented middleware. The component  
parts collectively act as a client in a larger client-server arrangement, with the server being, for example, a mail server. We call this a  
'Distributed Client' model. A core advantage of the Distributed Client model is that it allows a terminal, such as mobile device with  
limited processing capacity, power, and connectivity, to enjoy the functionality of full-featured client access to a server environment  
using minimum resources on the mobile device by distributing some of the functionality normally associated with the client onto the  
server side, which is not so resource constrained.

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**Published:**

- with international search report
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# INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04L29/08 H04L29/06 H04L12/58 G06F9/45

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.         |
|------------|--|-------------------------------|
| X          | WO 01/77815 A (TRANSCIVE TECHNOLOGIES INC)<br>18 October 2001 (2001-10-18)   | 1,2,10,<br>14-19,<br>30,32-37 |
| Y          | abstract; figures 1,5<br><br>page 1, line 15 - page 2, line 29<br>page 3, line 6 - line 34<br>page 5, line 28 - page 6, line 3<br>page 7, line 29 - page 8, line 7<br>page 8, line 31 - page 9, line 30<br>page 18, line 31 - line 34<br>page 19, line 21 - line 28<br>page 23, line 10 - line 19<br>-----<br>-/-- | 3,4,12,<br>13,24              |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| Y          | <p>WO 97/46939 A (NEW ERA OF NETWORKS INC)<br/>11 December 1997 (1997-12-11)<br/>abstract<br/>page 3, line 4 - page 5, line 1<br/>page 14, line 10 - line 15<br/>page 15, line 6 - line 19<br/>page 16, line 7 - page 17, line 9<br/>page 32, line 15 - page 33, line 6<br/>-----</p> | 3,4,12,<br>13         |
| Y          | <p>GLOMOP GROUP: "GloMop: Global Mobile<br/>Computing By Proxy"<br/>GLOMOP, 13 September 1995 (1995-09-13),<br/>XP002094009<br/>the whole document<br/>-----</p>  | 24                    |
| X          | <p>WO 01/93033 A (TRANCEIVE TECHNOLOGIES INC)<br/>6 December 2001 (2001-12-06)<br/>abstract<br/>page 1, line 21 - page 2, line 11<br/>page 27, line 33 - page 28, line 24<br/>page 32, line 14 - line 16<br/>-----</p>  | 1,34,36,<br>37        |

# INTERNATIONAL SEARCH REPORT

international application No.  
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## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-4, 10, 12-19, 24, 30, 32-37

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 10, 12-19, 24, 30, 32-37

the terminal-side component insulates a terminal program from being affected if the connection over the network is broken by also queuing messages in readiness for the connection to be re-established, enabling the terminal program to proceed to its next task

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2. claims: 5-9 and 11

data replication being achieved by sending events rather than a complete dataset (or sub-sets of a dataset) of stored data for synchronisation

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3. claims: 20-23

the terminal-side component monitors available memory on the terminal and automatically deletes data stored on the terminal that meets pre-defined criteria

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4. claim: 25

the terminal-side component enables a user to select a release option to delete a message stored on the terminal but not the corresponding message stored on the server

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5. claims: 26-29

correct routing of messages addressed to a terminal identified by an ID by mapping that ID to the actual IP address

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6. claim: 31

challenge to any third party suspected of attempting a denial of service attack on the terminal

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# INTERNATIONAL SEARCH REPORT

Inter-  
national Application No  
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| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)  | Publication<br>date  |
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| WO 9746939 A                              | 11-12-1997          | US 5916307 A<br>EP 0978034 A1<br>JP 2000511666 T<br>WO 9746939 A1                                   | 29-06-1999<br>09-02-2000<br>05-09-2000<br>11-12-1997                             |
| WO 0193033 A                              | 06-12-2001          | US 6687735 B1<br>AU 4982201 A<br>AU 6503801 A<br>WO 0177815 A2<br>WO 0193033 A2                     | 03-02-2004<br>23-10-2001<br>11-12-2001<br>18-10-2001<br>06-12-2001               |